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INNOVATORS: ARCHITECTS

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ABSTRACT

Frank Lloyd Wright, Le Corbusier, and Frank Gehry were experimental architects: all worked visually, and arrived at their designs by discovering forms as they sketched. Their styles evolved gradually over long periods, and all three produced the buildings that are generally considered their greatest masterpieces after the age of 60. In contrast, Maya Lin is a conceptual architect: her designs originate in ideas, and they arrive fully formed. The work that dominates her career, the Vietnam Veterans Memorial, was designed as an assignment for a course she took during her senior year of college. The dominance of a single early work makes Lin's career comparable to those of a number of precocious conceptual innovators in other arts, including the painter Paul Sérusier, the sculptor Meret Oppenheim, the novelist J.D. Salinger, and the poet Allen Ginsberg.

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In his influential survey of the development of modern architecture, Sigfried Giedion observed that:

> Throughout history there persist two distinct trends – the one toward the rational and the geometrical, the other toward the irrational and the organic: two different ways of dealing with or of mastering the environment. These contrasting approaches to the problem have been evident in all cultures, both early and late. Since the beginning of civilization there have been cities planned according to regular schemes and cities which have grown up organically like trees . . .
>
> The difference between organic and geometrical perceptions is present even today in contemporary painting and contemporary architecture. They are constantly recurrent ways of approach; one cannot be considered superior to the other.

Giedion's analysis appears neatly to separate rational, conceptual architects from their organic, experimental peers. Thus he immediately proceeded to an application of his scheme: "From the beginning Frank Lloyd Wright faced toward an organic perception of the world."[1] This chapter examines the careers and contributions of Wright and two other great experimental modern architects, and of a conceptual architect who revolutionized a particular branch of modern architecture.

Frank Lloyd Wright (1867-1959)

> The architect has a hard road to travel and far to go.
>
> Frank Lloyd Wright[2]

In a speech to his fellow architects, 33-year-old Frank Lloyd Wright declared that "The education of the architect should commence when he is two days old (three days is too much), and continue until he passes beyond, leaving his experiments by the wayside to serve his profession as warning signs or guide posts." He cautioned that the dedicated architect was likely to "see his wife and children suffer for ideals that may seem ridiculous," and this was true for his own three wives and numerous children, for throughout his tumultuous life Wright consistently placed his profession ahead of his family.[3] But Wright never wavered, for he knew that

"architecture is life; or at least it is life itself taking *form*… So architecture I know to be a Great Spirit."[4]

Wright claimed that even before he was born, his mother "intended him to be an Architect."[5] He spent most of his childhood in Wisconsin, and it was during summers he spent working on an uncle's farm that he discovered the aesthetic that was to have a profound impact on his art: "I loved the prairie by instinct as itself a great simplicity."[6] He had little interest in college, and spent barely a year at the University of Wisconsin before leaving Madison for Chicago. There, at the age of 19, he found work as an architect, and began a career that would last more than 70 years.

Wright became by far the greatest American architect of the twentieth century. A poll of its members taken in 2000 by the American Institute of Architects (AIA) determined that Wright designed four of the ten greatest American buildings of the twentieth century – three more than any other architect. Wright designed one of these buildings at the age of 41, two at 69, and one at 76. This remarkable age profile was a result of both the nature of Wright's goals and the methods he devised to pursue them.

In 1908, Wright stated six principles of what he called organic architecture. The first was simplicity. The second was individuality: people differ, so houses should differ to suit them. The third was harmony with surroundings: "A building should appear to grow easily from its site." The fourth was to use the colors of nature, particularly the "warm, optimistic tones of earths and autumn leaves." The fifth was to bring out the true nature of materials, by revealing their natural textures and appearance. And the sixth was character: like people, buildings should have sincerity and integrity.[7] Throughout his career, Wright would insist that his architecture was organic, but he would never make the concept more precise. Sigfried Giedion observed that "It was clear, finally,

that no explanation was possible in words, that what he meant by organic architecture could be revealed only in his work."[8]

In 1887 Wright joined Adler and Sullivan, the leading Chicago firm for commercial architecture. Among the commissions assigned to Wright were those for any private residences the firm could not avoid. This led to his first major contribution, the Prairie House. Wright designed a series of homes that culminated in Chicago's Robie House (1908), the earliest of the four Wright buildings cited by the AIA poll. In these houses he developed a distinctive style, usually featuring a long, low roof, cantilevered out to create an extensive overhang, and open, flowing interior spaces produced by minimizing walls, doors, and other internal partitions.[9] When a catalogue of Wright's work was published in Germany in 1910-11, the Prairie House had a major impact on the work of a number of younger European architects, including Walter Gropius, Le Corbusier, and Mies van der Rohe, who used elements of Wright's style in ways that he would bitterly resent.[10]

During the construction of Robie House, Wright altered the contractor's blueprints to make an opening in the floor of the balcony at each end of the building, creating dramatic views from the ground to the roof.[11] This was an example of a lifelong practice that stemmed from Wright's experimental approach to his art. He believed that plans should grow slowly –"the plan is the gist of all truly creative matter and must gradually mature as such." Yet the drawing by no means completed the design: "The original plan not as an idea but as a piece of paper may be thrown away as the work proceeds. Probably most of those for the most wonderful buildings in the world were because the concept grows and matures during realization, if the master mind is continually with the work." The importance of the master mind's control implied that no process would be acceptable "that does not give to the architect complete control of his design and assure

control to him until final completion of the building."[12] Wright regularly changed buildings under construction, and this inevitably caused delays and increased costs. He also consistently used his charm and charisma to mollify disgruntled contractors and outraged clients. So for example the construction of the Johnson Wax Company's administration building in Racine –another of the AIA's greatest buildings –stretched from a scheduled one year to three, and its final cost rose to more than ten times the initial estimate, as Wright performed what a friend and biographer described as "a succession of near-miraculous improvisations on an essentially simple theme." In one letter to the long-suffering client, Wright actually attributed his failure to provide complete working drawings for the building to the difficulty of anticipating its appearance: "You see the building grows as it is built and is none too easy, therefore, to keep up with."[13]

By 1910, Wright was widely considered the most important architect alive, but during the next two decades he was eclipsed by several younger European rivals. By 1930, with Wright past the age of 60, many assumed his career was finished. But Wright disagreed, as in that year he declared that "not only do I fully intend to be the greatest architect who has yet lived, but the greatest who will ever live."[14] Commissions were scarce during the Depression, but in 1934, the Pittsburgh department store owner E. J. Kaufmann asked Wright to design his weekend house near a stream at Bear Run, Pennsylvania. Given this opportunity to revive his career, Wright succeeded spectacularly.

Wright traveled from his home in Wisconsin to visit the site at least three times over a period of nine months before producing his first plans for the house. These contained a major surprise, for instead of siting the house across the stream from a 30-foot waterfall, Wright placed the house above the waterfall, creating the visual illusion that the stream runs through the house: he explained to his startled client that "I want you to live with the waterfall, not just to look at

it."[15] Wright gave the house an elegant profile, but he insisted that its visual effects "are entirely consistent with the Prairie Houses of 1901-10," notably in the visual dominance of the long, low, horizontal roof and terraces.[16] One of the house's most famous features, the upper balcony that dramatically oversails the living room below it, was a daring use of the cantilever that in less extreme form had been a staple of the Prairie Houses. The building's conformity to the landscape around it has been attributed to Wright's subtle use of the diagonal axis as an organizing force, a skill he had acquired from long experience in using diagonals ever since the early Prairie Houses of the 1890s.[17] As usual, Wright made major alterations during construction, including tearing down the three massive concrete bolsters that served as the building's main support in order to remake them with a sleeker shape.[18]

Fallingwater received a flood of publicity when it was completed in 1937, with feature articles in hundreds of newspapers and magazines, and an exhibit devoted to the house at New York's Museum of Modern Art. Wright's fame rose to new levels, far beyond the world of architecture; at the age of 70, he became the first architect to appear on the cover of *Time* magazine, and the *New Yorker* seconded *Time's* judgment that he was the world's greatest living architect.[19] Fallingwater also had an immediate impact on other architects, as within months of its completion it influenced the Finnish architect Alvar Aalto's approach to the Villa Mairea.[20] In time, Aalto would be recognized as one of the century's greatest architects, and the Villa Mairea would be considered his greatest achievement.[21]

Fallingwater is often considered Wright's greatest achievement: so for example it ranked first in the AIA poll in 2000. Yet by another measure, Wright's greatest work was done still later, for Fallingwater ranks second among Wright's buildings in frequency of illustration in art history textbooks, behind New York's Guggenheim Museum.[22]

Wright was commissioned to design the Guggenheim in 1943. Two years later, he had settled on its distinctive design, featuring a circular spiral that widened as it rose.[23] The building was not completed until 1959, because of delays in acquiring the site and permissions for construction. Yet in January, 1959, the 92-year-old Wright made his last trip to New York to settle such final details as the proper finish for the floors, and less than a week before his death in April he wrote to protest the construction of a fence to keep crowds away from the building. Wright's concern – that the vertical posts of the fence would clash with the building's horizontal lines, and thus destroy "the overall character of the building" – was, as always, visual.[24]

The Guggenheim drew heavily on Wright's many decades of experience. Its fundamental organization, with a large building, the focus of primary activity, dominating a smaller connected building that housed supporting services, can be traced through all of Wright's public projects, beginning with Buffalo's Larkin Building (1906), and including the Johnson Wax Building (1936), making these seemingly diverse buildings "variations on a single remarkably specific architectural device."[25] The larger building in each project had a central skylight and one or more mezzanine ringing a central open space. (One familiar echo of this design is the towering atrium that became the visual trademark of Hyatt Regency hotels, borrowed by the architect John Portman from Wright.)

Frank Lloyd Wright's quest, which he named organic architecture, was to create buildings that were inspired by nature. He recognized that it would never be possible to match the perfection of natural forms, so "The complete goal of the ideal of the organic architecture is never reached." But this did not trouble him: "What worthwhile ideal is ever reached?"[26] Wright considered creating buildings a "searching process," in which a progressive simplification would bring him ever closer to his elusive goal: "Nothing is more difficult to achieve than the integral

simplicity of organic nature."[27] Because this process had no end point, "no organic building may ever be 'finished,'" and Wright not only changed his buildings during their construction, but also often returned to old drawings in his archives, revising them, and using them as the basis for new commissions.[28] His commitment was to improving his art through experimentation, and he produced his greatest masterpieces after five decades of work. At the age of 66, he recorded his faith in the experimental life cycle of creativity: "Any work of any lifetime truly animated by principle will leave fresh ideas on the drawing board every morning… And the later work of any such spirit will be the greatest work; ripened by the only valuable tests on the only real proving ground; the proving ground of intimate experience."[29]

Le Corbusier (1887-1965)

> Creation is a patient search.
>
> Le Corbusier[30]

Charles-Edouard Jeanneret was born and raised in La Chaux-de-Fonds, a Swiss town in the Jura mountains dominated by watchmaking. He attended art school, intending to follow his grandfather and father into the craft of engraving watch cases, but he rebelled, and for a time remained undecided between architecture and painting. He found his calling in 1911, at the age of 24, on a trip around Europe. He recalled that "The essential moment came for me at Athens," as among the temples of the Acropolis, he discovered that architecture could have an emotional impact: "everything was a shout of inspiration."[31] Studying the Acropolis daily for three weeks, he decided that its power came from the relation of the buildings to their setting: "For all the majesty of the natural surroundings, the focal point was an amalgam of buildings perfectly placed on their sites by human beings."[32]

Edouard subsequently renamed himself Le Corbusier, and in time became the greatest architect of the modern era—the only twentieth-century architect whose work is more frequently

illustrated in architecture and art history textbooks than that of Frank Lloyd Wright.[33] He never did formal studies in architecture, and he always considered his youthful journey to the East his "school of architecture…his education, opening doors and windows for him."[34]

Le Corbusier moved to Paris permanently in 1917. In addition to his architectural practice, he wrote for a magazine he founded with the painter Amédee Ozenfant. In 1923, he published a collection of his articles as a book, under the title *Vers une architecture* (*Toward an Architecture*). This quickly became one of the most influential books ever published by a modern architect. With its stark declaration that "A house is a machine for living in," *Vers une architecture* was generally regarded as a radical functionalist manifesto for the new age of machinery. This view appeared to be supported by the book's many pictures of elegant modern ocean liners, airplanes, and automobiles, and the assertion that "We must create the mass-production spirit." Yet this interpretation overlooked such statements as "Architecture goes beyond utilitarian needs," and "there is no art without emotion." It also ignored Le Corbusier's definition of architecture in visual terms, as "the masterly, correct and magnificent play of masses brought together in light."[35] As the architect Peter Blake later observed, "by and large, Corbu has been less concerned with the technology of architecture than with its art. The confusion about Corbu's true objective stems from the single, simple fact that he found his major sources of *aesthetic* inspiration in the *technology* of our time."[36]

In *Vers une architecture*, Le Corbusier stressed the challenge of reconciling modern technology with the art of architecture. In a key passage, he noted that "in the last fifty years steel and concrete have brought new conquests, which are the index of a greater capacity for construction, and of an architecture in which the old codes have been overturned."[37] Ferroconcrete, or reinforced concrete, had begun to be widely used in the early twentieth century,

and Le Corbusier had learned of its potential value when he worked briefly for Auguste Perret, the French architect who pioneered its use. Le Corbusier early adopted ferroconcrete as a basic material, and he devoted much of his career to creating a new architecture that exploited its capacities.

During the 1920s, Le Corbusier designed a series of houses, and these led to his first masterpiece. The Villa Savoye (1928) in Poissy, near Paris, is challenged only by Fallingwater for the position of the most innovative private residence of the twentieth century.[38] Villa Savoye's pristine white surfaces and simple geometric forms further contributed to the image of Le Corbusier as a functionalist, and led to its contemptuous dismissal by Frank Lloyd Wright as a "box on stilts."[39] In fact, however, the building's taut contours were inspired not only by modern machines, but also by Le Corbusier's recollection of the perfect lines of the marble columns of the Parthenon, on which the sections were connected so smoothly that he could not find the joints even by running his fingernail over them.[40] The Villa's elevation on stilts was also inspired by the Acropolis, for its raised position allowed it to look out over nature like the Greek temples that commanded the surrounding land and sea. The reinforced concrete structure of the Villa made possible the long horizontal windows that opened it up to light to a greater extent than had previously been possible.[41]

Le Cobusier's architecture never stopped changing. One landmark result of his extended continued evolution was a celebrated apartment building, the Unité d'habitation Marseille (1945-52). Le Corbusier declared that "Twenty years of research are written into this building," as the smooth white facades of the Villa Savoye were replaced by rough, dark expanses of raw concrete that appear to have been inscribed or scraped.[42] These were made of unfinished concrete that bears the irregular imprint of the wood grain of the boards used to form it. At the building's

inauguration, Le Corbusier observed that ferroconcrete treated in this way might be considered "a natural material of the same rank as stone, wood or terra cotta. It seems to be really possible to consider concrete as a reconstructed stone worthy of being exposed in its natural state."[43] The 65-year-old architect declared that "The defects shout at one from all parts of the structure!", and contended that this gave it dignity and sincerity: "in men and women do you not see the wrinkles and birthmarks, the crooked noses, the innumerable peculiarities? ... Faults are human; they are ourselves, our daily lives."[44] The coarse appearance of the Unité made it a popular target for ridicule by the press and public, giving rise to what Le Corbusier called "Five years of storm, spite, and uproar…despicable, ugly."[45] Yet Le Corbusier's peers quickly appreciated the building's new aesthetic. Walter Gropius, a leading practitioner and proponent of functionalist architecture, nonetheless remarked that "Any architect who does not find this building beautiful had better lay down his pencil."[46] And less than a decade after the completion of the Unité, it inspired the New Brutalism, a movement created by a group of young English architects.

While working on the Unité, Le Corbusier designed a very different structure that art scholars consider the greatest building of the twentieth century. Thus the Chapel of Notre-Dame-du-Haut (1950-55) at Ronchamp is more frequently illustrated in textbooks than any other building of the century.[47] When the Protestant Le Corbusier was first approached to design a Catholic church he declined, saying he had no time for a "dead institution." Yet Le Corbusier agreed to visit Ronchamp, and the priest who accompanied him recalled that the architect was "seduced by the site," high atop a hill, with uninterrupted views of nature in all directions, and that he immediately began to draw.[48] The appeal of the commission was enhanced by the promise that he would have free rein to do what he pleased, a rare opportunity to create what he called "Completely uninhibited architecture."[49]

The shape of the chapel's most celebrated feature, its bulging, curved roof, originated from a crab shell Le Corbusier had found on a beach three years earlier, then evolved gradually over time: he explained that "Perception is a series of visual events…time, duration, succession, continuity are the constitutive features of architecture."[50] The roof was constructed from untinted reinforced concrete, in its raw state. Immediately after the chapel's inauguration, Le Corbusier wrote to a friend that "The architecture of reinforced concrete has entered into the history of pure architecture."[51] His claim was fully justified by events, for the roof at Ronchamp would inspire scores of younger architects to create what Vincent Scully called "such eccentric and active shapes as architects had hardly imagined."[52] The chapel at Ronchamp was also a white building on top of a hill, yet another reference to Edouard Jeanneret's essential moment in Athens more than 40 years before.

Over time Le Corbusier grew bitter at the constant criticism of his work, and lack of official support: he was sorely disappointed that he never received a major commission in either Paris or New York.[53] After the architect's death, his friend André Malraux declared in a eulogy that "no one else has so forcefully signified the architectural revolution, for no one else has been so long and so patiently insulted. It is through disparagement that his glory has attained its ultimate luster."[54] Le Corbusier worked tirelessly toward a goal he formulated early in his career, of reconciling modern technology with beauty in architecture. Thus late in his life he declared that "I have achieved a position throughout the world thanks to my researches concerning the structures of a machine civilization."[55] The products of his research inspired generations of architects: in a typical tribute, Tadao Ando wrote that at his first sight of the chapel at Ronchamp, "I was overwhelmed by this architecture celebrating the joy of creation and human freedom."[56] Frank Gehry, who first saw the chapel at Ronchamp shortly after it was completed, still visits it at

least once a year for inspiration.[57] Le Corbusier's commitment to his art was also an inspiration to his successors: Louis Kahn explained that "Every man…has a figure in his work who he feels answerable to. I often…say to myself, 'How'm I doing, Corbusier?'"[58]

Le Corbusier's legacy was that of a great experimental artist: he described himself in his final interview as "A visual man, working with his eyes and his hands." In that interview, he reflected that "my philosophy could be summed up in this way: in life one must act… with modesty, correctly, with precision. The only possible atmosphere conducive to artistic creation is steadiness, modesty, continuity, perseverance."[59] Because of his conviction that architecture required judgment, he warned aspiring architects that they should be patient: "One can be a poet at twenty, a virtuoso at fifteen; but architects and urban planners are late bloomers."[60] This was not mere rhetoric on his part, for among his many achievements, at the age of 68 he had completed the greatest building of the twentieth century.

Frank Gehry (1929-)

My working process is an evolution, like watching paint dry.

Frank Gehry[61]

Frank Goldberg was born and raised in Toronto, Ontario. His family was never secure economically, and when Frank was 18 they moved to Los Angeles. Frank attended the University of Southern California, and when he left school in 1954 he changed his last name to Gehry, to avoid being identified as Jewish.[62] He has spent virtually his entire professional life in Los Angeles, where he started his own firm in 1962. A survey of recent textbooks of the history of art and architecture found that Gehry's work was reproduced more frequently than that of any other living architect, implying that art scholars consider him the greatest architect of the late twentieth and early twenty-first centuries.[63]

Gehry studied both fine arts and architecture in college, and he was determined to combine the two to improve cities. He decided early on that large-scale urban planning was impracticable, so his goal was to design individual buildings that would beautify their neighborhoods, and he aimed to do this by importing visual qualities from painting and sculpture into architecture.[64] Gradually, he developed a distinctive new aesthetic.

One of Gehry's central concerns has been to create architecture for the modern city that incorporates movement:

> It's modern life, the real experience of living in this world, that's fueled my work… The real world today comes hurtling at you like a runaway truck… That's the energy I try to harness in my work…I'm intrigued by the sense of movement.[65]

A model for this came from modern sculpture:

> It's hard to sustain the feeling of life from a first model to the final work… Giacometti just got it. It's all about surface, and it takes a lifetime to know how to do it. And Giacometti figured it out.[66]

Another element of Gehry's aesthetic is his preference for buildings that appear incomplete:

> I am interested in the work not appearing finished… I prefer the sketch quality, the tentativeness, the messiness if you will, the appearance of in-progress rather than the presumption of total resolution and finality.[67]

Here again, an inspiration came from experimental visual artists, particularly those whose finished works visibly retain the marks of their own creation: "I was interested in the unfinished – or the quality that you find in paintings by Jackson Pollock, for instance, or de Kooning, or Cézanne, that look like the paint was just applied."[68] Gehry has long believed in the aesthetic redemption of commonplace materials. One prominent example of this is metal fencing: "That's the populism in my work, as opposed to the art. What's wrong with chain link? I hate it, too, but

can we make it beautiful? I said, 'Maybe…if you're going to use it in huge quantities, you can use it beautifully.'"[69]

Gehry has pointed to many artistic influences, but in a 1994 lecture at London's Royal Academy he identified his models in architecture as Frank Lloyd Wright, Le Corbusier, Mies van der Rohe, and Alvar Aalto – all great experimental architects.[70] More recently, he explained that what he valued in the architecture of Wright, Corbusier, and Aalto was "the touch… the humanity of it."[71]

Gehry stresses that his work is done gradually: "I am a *slow* architect, I take a long time to create."[72] He designs by an extended process of trial and error, with careful visual examination at every stage:

> I sketch it out, and once we know it'll function, sometimes with the crumpled paper but mostly with other materials, and we build model after model after model. We agonize about every little part of it, and I stare for hours and then I move something just a little bit, and I stare some more, and then slowly it starts to take shape.[73]

He needs to engage not only with the site, but with the client: "I need to fall in love with the people, the client, the site. Establishing that trust gives me the time to explore. Place is the crucial starting point."[74] If his relationship with the client deteriorates, so does his interest in the project: "The building is a building, but it has lost its soul."[75]

Gehry recognizes that his seemingly endless process of searching eventually frustrates even sympathetic clients, because they don't understand that their agreement with Gehry on a design does not mean he will stop changing it:

> They think I'm doing four different schemes. "I like the first one, the second one, I liked the third one - now you're doing it again?" So they think you're pulling the carpet out… I don't know where I'm going. I just explain the issues. Is it better not to do that? Is it better to come in at the end, and say, "This is it?"[76]

Gehry's need to keep changing his designs even at the cost of alienating clients appears to parallel Roger Fry's description of Cézanne, approaching his motif "with infinite precautions, stalking it, as it were, now from one point of view, now from another, and always in fear lest a premature definition might deprive it of something of its total complexity."[77]

An example of Gehry's experimental approach and its consequences is afforded by the case of a Malibu guest house he designed for the art collector Norton Simon in 1976. After much of the construction was done, Gehry attempted to create a novel visual effect:

> I decided to make a trellis that looked like a pile of wood that had been laid on the roof, caught up in the wind blowing off the ocean, as if the wind had caught it and flung it in mid-air. The trellis would have captured this movement, and every time you looked at it, it would look different. That's what I was trying to do. I didn't know how to do it. I knew how to draw it, but I didn't know how to build it.

Gehry decided to build the trellis incrementally, drawing a layer, building it, looking at it, then repeating the process. This ended with the client's intervention:

> I think we even got the third layer built, and Norton said, "Stop," because it was getting too expensive…[I]t offended him that he was paying for this experiment and he didn't know where it was going to go…He said to me, "There have been many great artists over time who have not been able to finish their masterpieces. I'm going to add you to the list." And so we stopped.[78]

Gehry first attracted widespread attention in 1978, when he was 49, as a result of his renovation of his own home in Santa Monica. His transformation of a conventional wood bungalow, by wrapping the ground floor in corrugated steel and screening the upper floor with chain-link fencing, shocked and angered many of his neighbors, who were quoted in the *Los Angeles Times* describing it variously as "anti-social," a "monstrosity," a "prison," and "a dirty thing to do in somebody else's front yard." In addition to numerous official protests and legal actions, on two occasions bullets were fired through a window.[79] Gehry was philosophical about

the attacks, reflecting that life was not a "chocolate sundae— people bite each other."[80] Yet he felt he had accomplished something, by creating ambiguity: "You were never sure what was intentional and what wasn't. It looked in progress… There was something magical about the house. And I know that the thing a lot of people hated or laughed at, was the magic."[81]

Gehry's reputation grew over time, and his style evolved. His early projects were rectilinear- he explained that "we have to take small steps"- but during the 1990s he became known for his novel use of curved forms.[82] In 1991, Gehry was awarded the commission to design a new satellite of the Guggenheim Museum in the Basque city of Bilbao. The city was struggling economically, and Gehry was told that the Basque regional government "needed a 'hit' there…They needed the building to do for Bilbao what the Sydney Opera House did for Australia." This need led them to choose Gehry's unconventional proposal - what even he called his "weird-looking scheme."[83]

Faced with the challenge of creating not only a tourist attraction for a depressed region, but also a work of art worthy of becoming a younger sibling to Frank Lloyd Wright's New York Guggenheim, Gehry stretched the bounds of architecture to produce a masterpiece that succeeded on both counts. As Gehry accurately and succinctly summarized the building's economic impact, "After it was built people started going to Bilbao and that changed the economics of the city. It was wildly successful."[84] Indeed, the building's economic success prompted the architect Peter Eisenman to coin the term "Bilbao Effect," which quickly gained currency to describe the economic stimulus a dramatic new building could give a community.[85] Artistically, the abstract sculptural forms of the Bilbao Guggenheim quickly made it the second most-frequently illustrated building of the twentieth century in textbooks of architecture and art history, narrowly behind Le

Corbusier's chapel at Ronchamp, and well ahead of Wright's Guggenheim.[86] When the Bilbao Guggenheim was completed in 1997, Frank Gehry was 68 years old.

One often-discussed aspect of the process by which the Bilbao Guggenheim was designed is the use by Gehry's firm of the CATIA program (Computer Aided Three- Dimensional Interactive Application), originally developed for the aerospace industry.[87] Yet Gehry did not design the building by computer. Instead, he produced the design in his usual way, with drawings and models, and the software was then used to translate the design into specifications that allowed its construction. An assistant who helped adapt the computer program for this purpose explained that Gehry's complex curved forms were effectively made possible in practice only by computers: "Bilbao could have been drawn with a pencil and straight-edge, but it would take us decades."[88]

The architecture critic Martin Filler recently wrote that "in 1976, when America's Bicentennial prompted countless predictions, no one would have bet that Gehry, pushing fifty and with no major buildings to his credit, would become the country's, let alone the world's, dominant architectural figure by the new millennium."[89] Gehry's continuing evolution throughout his career, produced by his unfailing belief in an experimental approach, explains this puzzle. The opening of the Bilbao Guggenheim in 1997 made him an instant celebrity, but it did not affect the humility of his approach to his art. Thus in 1998, when the clients for a new project asked Gehry how to break their old habits so they could accept a radical new design for their offices, he replied, "Well, you try things; you start things."[90]

Maya Lin (1960 -)

My idea arrives very quickly and is fully formed when it arrives.

Maya Lin [91]

Maya Lin's father was a ceramicist, and as a child she loved to work in his studio. In college she studied both art and architecture, and she was unsure whether she could work both as a sculptor and an architect. She did not resolve her concern over this problem until much later, when Frank Gehry advised her not to worry about the distinctions and simply make her work. [92]

During her senior year at Yale, Lin took a seminar in funereal architecture. When a national competition was announced for a Vietnam veterans memorial, the class adopted this as an appropriate assignment for its final project. Lin and a few of her classmates traveled to Washington, D.C., to see the proposed site for the monument on the Mall, and "it was at the site that the idea for the design took shape," in what she described as "an instantaneous idea." Thus she later recalled that:

> I had a simple impulse to cut into the earth.
> I imagined taking a knife and cutting into the earth, opening it up, an initial violence and pain that in time would heal. [93]

Lin's plan was to have two long walls of polished black granite, arranged in a V shape, placed in the ground to form an embankment. One of the walls was to point to the Lincoln Memorial, the other to the Washington Monument: "By linking these two strong symbols for the country, I wanted to create a unity between the nation's past and present." The names of the dead soldiers would be inscribed chronologically, beginning and ending at the monument's apex. The design was extremely simple, but Lin quickly realized that its strength lay in its simplicity:

> On our return to Yale, I quickly sketched my idea up, and it almost seemed too simple, too little. I toyed with the idea of adding some large flat slabs that would appear to lead into the memorial, but they didn't belong. The image was so simple that anything added to it began to detract from it. [94]

After Lin had completed the design, she decided to enter it in the national competition. She found that the most difficult part of the entry was writing a description:

> It took longer, in fact, to write the statement that I felt was needed to accompany the required drawings than to design the memorial. The description was critical to understanding the design since the memorial worked more on an emotional level than a formal level. [95]

One of the conditions of the competition for the memorial was that the design must include the names of all 57,000 Americans killed and missing in Vietnam, but Lin had in fact decided to do this even before she learned of the requirement, as a result of studying earlier memorials. The one that impressed her the most was Sir Edward Lutyens' 1932 monument to the missing soldiers of the World War I battle of the Somme. Lin recalled that one of her professors at Yale, Vincent Scully, was puzzled by her claim that Lutyens' memorial had influenced her, because its form had nothing in common with her design for the Vietnam memorial. Yet what inspired Lin wasn't the brick pyramidal form of Lutyens' memorial, or its interlocking arches, but rather its listing of thousands of names of soldiers, that allowed his monument to avoid making any political statement about the war. [96] Thus the influence of Lutyens' memorial on Lin was not visual, but conceptual.

Lin's design was chosen by an eight-person selection committee from among 1,421 entries. She instantly became a national celebrity, and violent debates ensued over her unorthodox design, both within the government agencies that had to approve the project and among the public at large. Criticisms included objections to the monument's black color, its lack of a profile above ground level, and its non-representational form. In an eventual compromise, a sculpture of three soldiers was placed near Lin's monument, over her vehement protest (Lin told the *Washington Post*, "I can't see how anyone of integrity can go around drawing mustaches on other people's portraits"). [97] Yet when the *Memorial* was dedicated in the fall of 1982, barely a year and a half after the selection of her design, Lin found it did reflect her original intention: "the place was frighteningly close to what I thought it should be." [98]

Lin's incorporation of names into the *Vietnam Veterans Memorial* was not an isolated solution, but rather the first instance of her use of texts - a practice she has followed throughout her career, that reflects her belief that "writing is the purest of art forms." Her goal is to communicate ideas, and "Words can be the most direct means of sharing our thoughts." She does not want people simply to look at her work: "My incorporation of text . . . requires a viewer to read the work." And many of her projects, like the *Vietnam Veterans Memorial*, involve chronologies, so that "Time becomes the object of the works; the form dematerializes . . . so that the text, the information, becomes the object." [99]

Lin's account of her practice in making art is highly conceptual. She begins her projects in a library: "I spend months reading, researching and studying a project before I try to find the form." She is not initially concerned with structures: "Instead, I try to think about it as an idea without a shape." At some point, the form appears: "I just wake up one morning and, without even thinking about it, I just make a model of it." The final form arrives so suddenly that she compares the process to laying an egg: "It is a rather strange metaphor, but an accurate one." She does not iterate: "I do not work and rework the idea." Nor does she control the timing: "I am never sure when I am going to find the form. Or, more accurately, when the form is going to find me." Lin attributes her immediate use of a model, without preliminary sketches or drawings, to the influence of her early experiences in her father's ceramics studio. [100]

Vincent Scully has contended that "In terms of popular response, and in its general effect on the national consciousness, the *Vietnam Veterans Memorial* has to be seen not only as the most important monument but also as the single most significant work of architecture to be constructed in the United States during the second half of [the twentieth] century." He explained that the *Memorial*

> changed things, changed the way the country felt, and is supremely a work of modern art. It was Hemingway who wrote, angrily, that the old rhetoric no longer worked and only names and numbers counted anymore. Here, without comment, the names of 57,000 dead are strung along a wall. [101]

Lin created the first major non-representational memorial, drawing on the simple forms of 1960s Minimalism and Earth Art to produce a new archetype for future memorials. [102] In so doing, she successfully healed a rift that had originated with Rodin: as Albert Elsen explained,

> Until Rodin, great sculptors throughout history provided images by which their sponsors obtained a sense of identity. Statues and reliefs were eternal reminders of those who had founded and defended the religion, laws, and culture of a society . . . What has been broken in [the twentieth] century is that part of the tradition in which great sculptors played a role. Ironically, the change focuses on Rodin . . . Rodin came to epitomize, at modern sculpture's beginning, the clash between sculpture made from private values, and expectations based on public norms. [103]

Rodin's *Monument to Balzac* was the prime early example of innovative modern sculpture disappointing the expectations for a monumental public work; Lin's *Vietnam Veterans Memorial* was the first major demonstration that advanced modern sculpture could successfully be adapted to public purposes.

The importance of the *Vietnam Veterans Memorial* for the history of art is witnessed by the fact that a recent survey of 40 art history textbooks published since 1994 found it to be illustrated in 16 books, which placed it in a tie with Richard Serra's *Tilted Arc* as the most frequently illustrated work made by an American artist during the 1980s. [104] Inevitably, the fame Lin gained from the *Memorial* led to a series of important commissions for public and private projects. [105] Remarkably, however, no other work by Lin is illustrated in even a single one of the 40 textbooks surveyed. [106] Lin is thus a recent case of a striking phenomenon in the history of art, of conceptual artists who have made one major contribution, almost always early in their careers, that has dominated their oeuvres. The French painter Eugène Delacroix remarked on this in his *Journal* as early as 1856: "Without the *masterpiece*, there is no great artist; yet those who have

produced only one during their lives have not become great men through that. The things of that type are usually the product of youth." [107] Delacroix was probably thinking, among others, of Antoine-Jean Gros, who painted *Napoleon in the Plague House at Jaffa* in 1804, at the age of 33, and of Théodore Gericault, who painted *The Raft of the Medusa* in 1819, at 28. But there have been numerous subsequent instances, including that of Paul Sérusier, whose *The Talisman* (1888), executed when the artist was 25, inspired a group of young artists to create the movement they named the Nabis. [108] Nor is the phenomenon restricted to painters; prominent examples from other arts include the sculptor Meret Oppenheim, who executed *Luncheon in Fur* in 1936, at the age of 23; the novelist J.D. Salinger, who published *The Catcher in the Rye* in 1951, at 32; and the poet Allen Ginsberg, who published *Howl* in 1954, at 29. All of these artists are among the precocious conceptual innovators who must eventually have experienced the fear Lin has acknowledged, that one early inspiration would overshadow all their later efforts: "How do you compete with a work that has become so public, so well received, so widely accepted?" [109]

Drawing and Persistence

In his autobiography, Frank Lloyd Wright recalled that as a boy he was "perpetually making designs. Drawing always. Always making drawings for fun. Especially by lamplight, evenings." [110] Le Corbusier recalled that he had left school to study art at the age of 13, "Because I had been very interested by drawing ever since I could remember. I drew on the table, everywhere, nonstop." [111]

As an adult, Wright never lost his passion for drawing: "Now regard this pure white sheet of paper!...T-square, triangle, scale – seductive invitation lying upon the spotless surface. Temptation!" [112] Le Corbusier never went anywhere without sketch pads; for him drawing was seeing, and creating:

> When one travels and works with visual things – architecture, painting or sculpture – one uses one's eyes and *draws*, so as to fix deep down in one's experience what is seen…To draw oneself, to trace the lines, handle the volumes, organize the surface…all this means first to look, and then to observe and finally perhaps to discover…and it is then that inspiration may come. [113]

Frank Gehry refers to sketching as a way of "thinking aloud." [114] He has explained:

> I start drawing sometimes, not knowing exactly where it is going. I use familiar strokes that evolve into the building…Sometimes it seems directionless, not going anywhere for sure. It's like feeling your way along in the dark, anticipating that something will come out usually. I became a voyeur of my own thoughts as they develop, and wonder about them. [115]

In classic experimental language, Gehry describes his drawings as "a searching in the paper. It's almost like I'm grinding into the paper, trying to find the building." [116]

Maya Lin's relationship to drawing contrasts sharply with those of Wright, Le Corbusier, and Gehry. For her, works of art do not begin as visual images, but as verbal ideas: "I first try to imagine an artwork verbally. I try to describe in writing what the project is, what it is trying to do. I need to understand the artwork without giving it a specific materiality or solid form." [117] Even after the idea appears, Lin often does not make drawings, preferring instead to proceed directly to models: "drawings other than plans are harder for me to see…[O]ftentimes I will make a model of a work without trying to draw it up or plan how to make the model – it is made instantaneously." [118]

Wright, Le Corbusier, and Gehry thus all used drawing both as a way of initially finding a form, and then as a way of exploring possible variations on that form, that might improve upon it. In contrast, the conceptual Lin does not use drawings for either of those purposes – she finds forms more abstractly, with language, and she often proceeds directly to a final model of the work without experimentation.

The contrast between the experimental desire for iteration and the conceptual disdain for it can equally be seen in these architects' attitudes toward sequential projects. Wright discovered early in his career, while developing the Prairie House, that he learned as he worked, and this made each project a point of departure for the next: "ideas had naturally begun to come to me as to a more natural house. Each house I built I longed for the chance to build another." [119] Le Corbusier similarly learned from his own experience: "It is helpful…to study one's own work constantly. An awareness of one's evolution is the springboard of progress." [120] For Gehry, no building is an end in itself: each house, for him is "a sketchbook for future projects." [121] Over time, he has become reconciled to the need to stop working on individual projects, but he understands his experimentation will continue:

> at some point I stop, because that's it. I don't come to a conclusion, but I think there's a certain reality of pressures to get the thing done that I accept. It's maturity, or whatever you want to call it, to say, stop, go, finish. I've got other ideas now, and the door is open for the next move, but it's not going to happen on this building, it's going to happen on the next one. [122]

Thus for the experimental Wright, Le Corbusier, and Gehry, each project led to a desire to do another, with the eager anticipation that their growing knowledge would allow them to do even better. Lin's attitude again contrasts starkly. For her, the *Vietnam Veterans Memorial* – her first project – was not a point of departure, but a definitive end point, that she had no interest in developing further. Thus in her memoir, she wrote that "I used to dread it whenever some large-scale disaster would happen because I inevitably would get a fax whether I could design a memorial to…which I would politely decline." [123]

Footnotes

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3. Gutheim, *Frank Lloyd Wright on Architecture*, pp. 16, 19.

4. Gutheim, *Frank Lloyd Wright on Architecture*, p. 257.

5. Frank Lloyd Wright, *An Autobiography* (New York: Duell, Sloan and Pearce, 1943), p. 11.

6. Gutheim, *Frank Lloyd Wright on Architecture*, p. 178.

7. Gutheim, *Frank Lloyd Wright on Architecture*, pp. 33-34.

8. Giedion, *Space, Time and Architecture*, p.414.

9. Grant Manson, *Frank Lloyd Wright to 1910* (New York: Van Nostrand Reinhold, 1958).

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24. Frank Lloyd Wright, *The Guggenheim Correspondence* (Carbondale: Southern Illinois University Press, 1986), pp. 284, 301-02.

25. Jonathan Lipman, "Consecrated Space: Wright's Public Buildings," in McCarter, *On and By Frank Lloyd Wright*, pp. 264-85.

26. Gutheim, *Frank Lloyd Wright on Architecture*, p. 38; Wright *An Autobiography*, p. 158.

27. Gutheim, *Frank Lloyd Wright on Architecture*, p. 58.

28. Gutheim, *Frank Lloyd Wright on Architecture*, p. 158; Robert McCarter, ed., *Frank Lloyd Wright* (New York: Princeton Architectural Press, 1991), p. 247.

29. Gutheim, *Frank Lloyd Wright on Architecture*, p. 174.

30. Le Corbusier, *Creation Is A Patient Search* (New York: Frederick A. Praeger, 1960).

31. Nicholas Weber, *Le Corbusier* (New York: Alfred A. Knopf, 2008), p.93; Le Corbusier, *Creation is a Patient Search*, p. 21.

32. Weber, *Le Corbusier*, p. 93.

33. Galenson, "The Greatest Architects of the Twentieth Century," Table 1.

34. Le Corbusier, *Creation Is A Patient Search*, p. 21.

35. Le Corbusier, *Towards a New Architecture* (New York: Dover Publications, 1986), pp. 4, 6, 29, 164.

36. Peter Blake, *Le Corbusier* (Baltimore: Penguin, 1960), p.34; also Scully, *Modern Architecture and other Essays*, pp. 238, 243.

37. Le Corbusier, *Towards a New Architecture*, p. 7.

38. Galenson, "The Greatest Architects of the Twentieth Century," Table 2. The Villa Savoye totaled 37 illustrations in the 22 textbooks consulted, compared to Fallingwater's 35 illustrations

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41. Giedion, *Space, Time and Architecture*, pp. 524-28.

42. Le Corbusier, *New World of Space* (New York: Reynal and Hitchcock, 1948), p. 23.

43. Giedion, *Space, Time and Architecture*, p. 547.

44. Jencks, *Le Corbusier and the Continual Revolution in Architecture*, p. 254.

45. Jencks, *Le Corbusier and the Continual Revolution in Architecture*, p. 258.

46. Blake, *Le Corbusier*, p. 124.

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50. Weber, *Le Corbusier*, p. 658-59.

51. Weber, *Le Corbusier*, p. 690.

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64. Christina Bechtler, ed., *Frank O. Gehry/ Kurt W. Forster* (Ostfildern-Ruit: Cantz Verlag, 1999), pp. 53-55, 87-88.

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68. Ragheb, *Frank Gehry, Architect*, p. 311.

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95. Lin, *Boundaries*, p. 4:11.

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117. Boswell, *Maya Lin*, p. 18.

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